THE NEXT STEP IN PREVENTING CROSS CONTAMINATION

INTRODUCTION

The food industry has the ultimate responsibility of ensuring that the products they source, process and pack can be safely consumed – physical, chemical and biological cleanliness is an absolute prerequisite for food safety. A wide range of hazards face manufacturers in the making of foodstuffs that can contaminate food such as microorganisms and their toxins, in addition to allergens, cleaning residues and lubricants.

Consumers demand the highest quality food, which not only entails the food to be fresh and nutritious but ultimately safe to eat. Throughout the entire supply chain there are significant risks of cross-contamination no more so than within the factory environment where raw materials and ingredients come into contact with surfaces and an environment that can carry and harbor pathogenic bacteria such as Campylobacter, MRSA, E.Coli, Legionella, Listeria and Salmonella among others.

Implementing and adhering to good hygiene practices is an essential part of preventing contamination on food contact surfaces. The industry spends millions of pounds on cleaning chemicals and equipment, but how effective is your cleaning equipment in preventing the spread of harmful bacteria, fungi and moulds? Has it the ability and is it of the right design to provide the defence and protection that is required to produce and prepare safe food?

LEGISLATION & INDUSTRY STANDARDS

National and international legislation and third party accreditation standards require the food industry to put safe food on the market, and additionally for equipment manufacturers to provide cleanable equipment and for that cleaning equipment to be maintained in an hygienic condition.

The new British Retail Consortium Global Standard for Food Safety – Version 08 (implemented February 2019) clearly states in Clause 4.11.6 that;

- Cleaning equipment shall be hygienically designed and fit for purpose;
- Suitably identified for intended use (e.g. colour coded or labelled)
- Cleaned and stored in a hygienic manner to prevent contamination.

Providing that the equipment and environment are hygienically designed, i.e. with no crevices or dead legs, and there is an effective cleaning and disinfection

programme and with the right cleaning tools, then the potential for growth and contamination from micro-organisms is greatly reduced. One less concern for food manufacturers and a green light for cleanliness compliance.

CLEANING EQUIPMENT

Cleaning tools are an essential 'must have' to implement an effective cleaning programme, but the choice is vast and often confusing and conflicting with many variations and designs to choose from. Efficiency and effectiveness to clean equipment and reduce contamination are the essential requirements for purchasing cleaning tools. Cleaning tools need to offer the protection against threats and dangers you can see and more importantly against those you can't see – 24 hours a day.

Cleaning equipment is often used over large surface areas and can collect and spread contamination. Data has shown that 47% of the cleaning equipment used can be positive for Listeria monocytogenes which demonstrates that cleaning equipment can be a major collection point for pathogens. Incorrect storage, failure to replace old or faulty cleaning tools, and incorrect design of cleaning equipment are all key factors contributing to potential microbiological hazards. Cleaning should reduce the risk of bacteria not contribute to the loading on equipment and the environment.

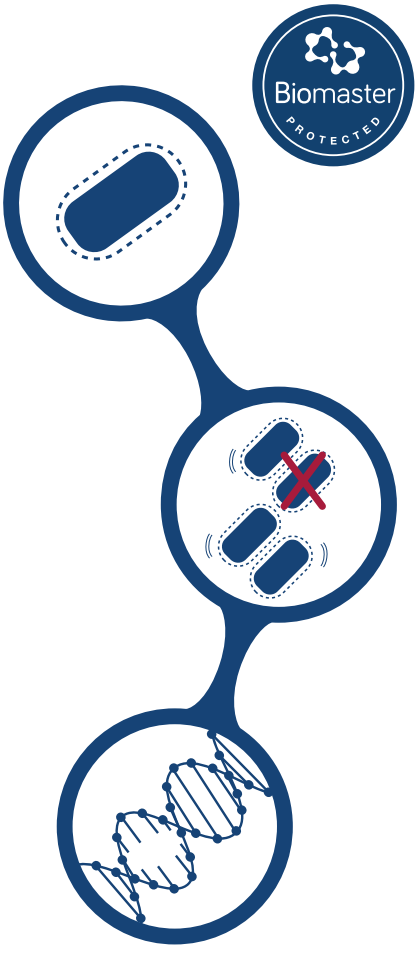
Using clean equipment that is fit for purpose and effective sanitising of equipment between use is one line of defence to prevent bacterial contamination but a second line of defence, that is increasing in popularity and reduces the threat of cross-contamination even further is the use of anti-microbial cleaning tools within the food production environment which can provide round the clock antimicrobial product protection.

> *"An antimicrobial is an agent that kills microorganisms or stops their growth. It prevents the growth of or destroys a wide range of microbes such as bacteria, fungi and moulds. This must not be confused with an 'antibacterial' that specifically prevents the growth of bacteria"*

WHY CHOOSE ANTI-MICROBIAL

Antimicrobial products are used in many environments such as hospitals, care homes, schools, gyms and offices but the benefits have also been identified within the food industry to reduce the risk of food poisoning from contamination. With the increasing awareness of the need to improve hygiene levels, the demand for antimicrobial cleaning tools is growing. Antimicrobial hygiene tools effectively inhibit the growth of bacteria on the surface of the product.

Hillbrush have worked in conjunction with Addmaster to develop a range of cleaning tools that are manufactured using Biomaster Antimicrobial Technology. By having an anti-microbial range of cleaning tools, Hillbrush provide effective antimicrobial product protection for the effective lifetime of the products helping to reduce microbial loading on cleaning equipment.



HOW DOES IT WORK

The antimicrobial (a silver ion based additive) is added in the cleaning tools at the time of production and binds to the cell wall of the bacteria disrupting growth. This interferes with enzyme production stopping the cell producing energy. The DNA is interrupted stopping replication which prevents the growth and spread of harmful microbes. Silver is a natural antibacterial metal as it does not contain the toxins that other metals do and has been used for thousands of years, to prevent the spread or germs. All plastics in the Hillbrush range of anti-microbial cleaning tools contain the Biomaster additive including the brush filaments, resin and handles.

THE SCIENCE

Hillbrush have contributed to a series of analytical tests to determine the effectiveness of the antibacterial activity with IMSL (Industrial Microbiological Services Ltd). The analysis was based on test methodology MOD ISO 22196:2011. Sampling all parts of the cleaning tool, they were able to ascertain the effectiveness of Biomaster in the reduction of key micro species. The below data shows the difference in the population following contact with the surface of the samples listed for 24 hours at a temperature of 35˚C under a relative humidity (RH) of >95% relative to the control sample. The Biomaster additive is registered with the FDA and EPA and uses actives that are being supported through the Biocidal product regulation EU no 528/2012.

Sample	Species	Contact Time (0 hours)	Contact Time (24 hours)	Reduction Log 10	Control %
Untreated Samples	E.Coli	1.6E + 04	4.5E + 05		
Hillbrush Treated Samples	E.Coli	1.6E + 04	3.5E + 01	4.1	> 99.99%
Untreated Samples	Listeria	2.5E + 04	9.5E + 03		
Hillbrush treated Samples	Listeria	2.5E + 04	<11.11	>2.93	> 99.99%
Untreated Samples	MRSA	1.6E + 04	2.7E + 02		
Hillbrush Treated Samples	MRSA	1.6E + 04	<11.11	>1.39	> 95.87%
Untreated Samples	Salmonella	2.3E + 04	2.2E + 04		
Hillbrush Treated Samples	Salmonella	2.3E + 04	<11.11	>3.30	> 99.99%

CONCLUSION

Antimicrobial products are not a replacement for good cleaning practices and manual cleaning is still key, but by cleaning with Hillbrush anti-microbial cleaning tools, bacterial survival on the equipment is reduced. Biomaster is constantly working in-between cleans to help prevent the buildup of microbes. Independent tests have shown up to a 99.99% reduction of harmful microbes after just 2 hours with permanant product protection after 24. the use of cleaning chemicals alone is not always recognised as the most effective method of cleaning and only offers a limited level of defence. The combination of the right chemicals alongside manual cleaning with anti-microbial tools can not only provide the food industry with a secondary level of defence in the reduction of cross contamination risks but can also help provide a safe food production environment.